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City of Wenatchee

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Wastewater Treatment Plant
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Water Resources Review

Pretreatment

Brian McDaniel
Quality Control Technician

What do pretreatment and a pretreatment program mean to you? Pretreatment protects the sewer system from wastes that may cause damage by removing harmful substances before they are poured down the drain. Pretreatment also prevents contaminants from passing through the wastewater treatment process and polluting the river. The goal of the pretreatment program is to protect the environment, personnel, and treatment facilities.

Washington State Department of Ecology issues wastewater treatment plants permits that set very stringent restrictions on discharges to receiving waters. The City's Wastewater Treatment Plant discharges to the Columbia River and in the past had problems with recurring permit violations, which recently led to an environmental lawsuit. Due to these problems, the treatment plant has undergone a seven million dollar plant upgrade to improve treatment. In addition, the City developed a pretreatment program to help reduce the number of toxic discharges it receives.

While designing the treatment process upgrades, an engineering study found the wastewater strength to be 50% stronger than that of other cities similar in size and demographics. One major contributing factor that causes wastewater to be stronger is fats, oils, and grease (FOG).

In addition to working with industries to reduce the amount of toxic discharges to the sewer, the city's pretreatment program works with commercial kitchen facilities to reduce the amount of FOG that is discharged to the system. However, commercial kitchens are not the only source of FOG. Residential customers also contribute to the problem.

Did you know?

The City of Wenatchee Wastewater Treatment Plant receives an average of 3.2 million gallons of wastewater each day.

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The wastewater treatment plant receives enough fat, oil, and grease each year to fill three average above ground swimming pools.

Please (We are begging YOU!) do not pour grease down the drain!

As FOG gathers in the collection system, it hardens to a wax-like substance and is very costly to remove. Allowing FOG to go down the drain can be very expensive, not only to the City, but also to the discharger. If a business or homeowner is found to be the cause of the collection system backup they may be liable for any damages and cleanup costs. Collection system backups and overflows can cost thousands of dollars for property damage and cleanup. Also, removing FOG before it enters the sewer helps keep operation and maintenance costs in check which then helps prevent significant sewer rate increases.

Help prevent sewer backups and overflows by:

- Scraping grease and food scraps from trays, plates, pots, pans, utensils, and grills (or other cooking surfaces) into a can or the trash for disposal.
- Dry wiping pots, pans, and serving dishes prior to washing them.
- Using the garbage can rather than the garbage disposal.

Treatment Plant Capacity

If just ½ of the FOG were eliminated from the wastewater currently received by the plant, it would provide additional capacity for **3000 people**.

Is there a Drought in Wenatchee?

Paula Salter, Environmental Tech

Yes, there have been signs of a drought all around us. The Wenatchee River and the Entiat River having been experiencing record setting low flows, and in August the mayor of Cashmere declared a water emergency.

Is Wenatchee's drinking water supply running out? No, the municipalities that feel the greatest impact from droughts are systems that use surface water or ground water that is greatly influenced by surface water. The City of Wenatchee's drinking water comes from a groundwater source called the Eastbank Aquifer. The Eastbank Aquifer is the largest and most reliable source of groundwater in the Mid-Columbia Region. (For more on the Eastbank Aquifer see pg. 5)

Even though Washington had a wetter than normal spring the real problem is

the lack of snow pack, being only 26 percent of normal. A below normal snow pack means low river flows in the summer and even lower flows in the fall.

On March 10, 2005 Washington State Governor Christine Gregoire authorized the Department of Ecology to declare a statewide drought emergency. A drought emergency is defined as water supplies being expected to drop below 75 percent of average. Also, an emergency means that a water shortage would cause an undue hardship to people and the environment. Hardship can include crop failures, shortages of drinking water and create barriers for fish passage. The last statewide drought emergency was in 2001, before that there was one in 1977.

Declaring a drought emergency activates additional authority to get water to those who need it and it provides access to special drought funds to help cover some of the costs. In May Governor Gregoire approved an additional emergency drought relief fund of \$8.2 million. Our area benefited

Water Saving Tips:

- Adjust sprinklers so only your lawn is watered and not the house, sidewalk or street.
- Set a kitchen timer when watering your lawn or garden to remind you when to stop.
- Use a broom instead of a hose to clean your driveway, sidewalk and patio
- Use a hose nozzle or turn off the water while you wash your car. You can save up to 100 gallons!
- Wash your car on your lawn, the car gets cleaned and the lawn gets watered!
- Scrape your dishes into the garbage instead of rinsing them under running water.
- Only run your dishwasher when it is full.

from this program and some of these funds have been approved for local water supply projects. The Wenatchee Heights Irrigation District got approval for \$700,000 to upgrade its river diversion system, the Icicle Irrigation District \$15,543 to repair its dam at Colchuck Lake, and the Three Lakes Water District \$200,000 to construct a pipe to connect with the Malaga domestic water system.

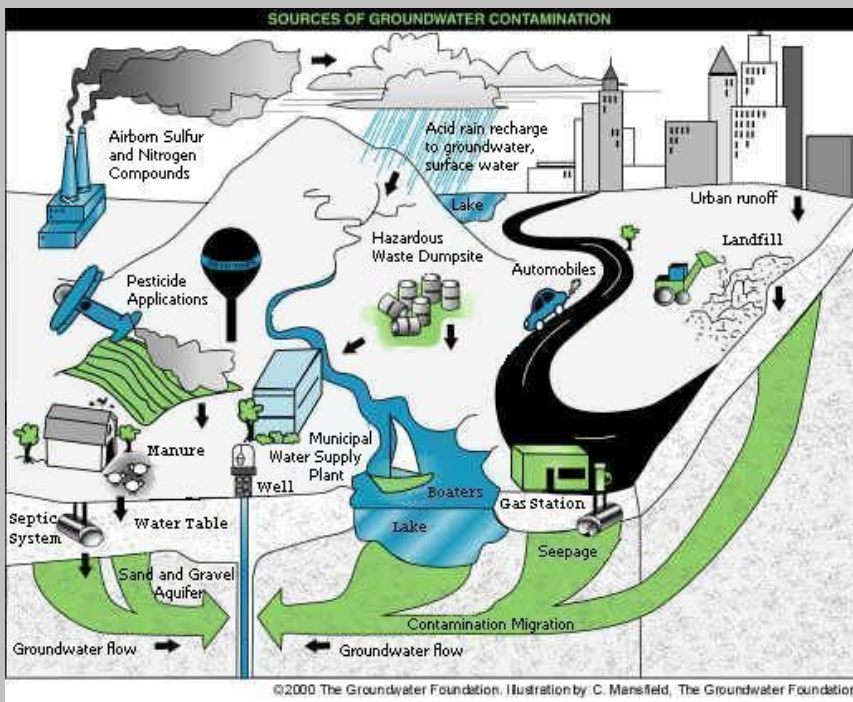
Water is a finite resource. There is a limited supply of water, and an even more limited supply of water fit for drinking. Protecting and conserving water today helps ensure there will be clean water to drink in the future.

A water faucet left running can use 10 gallons while you brush your teeth.

A hose left running can discharge up to 10 gallons a minute.

A leaky faucet drip can waste 20 or more gallons of water per day.

SOURCES OF GROUNDWATER CONTAMINATION



©2000 The Groundwater Foundation. Illustration by C. Mansfield, The Groundwater Foundation

Dangerous Cross Connections!!

Protecting our water supply from contamination.

Brad VanderVeer, Environmental Tech

You may not think of your home as having hazards that might affect the municipal water supply. However, a common garden hose submerged in a pool or a carwash bucket creates a cross connection. If a water main breaks or if a fire hydrant nearby is being used, water pressure drops and the potential exists for a suction event to occur. This means that water in your pool or carwash bucket could be drawn back into the public water system. Once there, the contaminated water could spread quickly to thousands of people. This is a serious concern of all water utilities. We can supply clean, safe water, but we need to continue to protect it once it leaves the Regional Source and flows through the distribution system.



Above is a Reduced Pressure Backflow Assembly, which protects the domestic water from being contaminated with water from a lawn irrigation system.

The City of Wenatchee maintains a cross connection control program with the goal of eliminating potential hazards in our drinking water. A cross connection is an actual or potential

physical connection between a public water system, or consumer's water system, and any source of non-potable liquid, solid, or gas that could contaminate the potable water supply by backflow. Simply put, a connection between a contaminated source and your drinking water system, is a cross connection.

A backflow prevention assembly, or cross connection control device is required under any circumstance where contamination of the public water system may occur. Water distribution systems are designed with the intention of water flowing in a certain direction, from the distribution system to the consumer. However, hydraulic conditions within the system may deviate from the "normal" causing the water to flow in the opposite direction in unprotected systems. An open fire hydrant, a broken water main in the city system, or an increase in water pressure in the consumer's system are just a few examples of conditions that may cause backflow. Under backflow conditions, unprotected cross-connections can introduce biological, chemical and/or physical contaminants into the drinking water supply. These contaminants can lead to waterborne disease outbreaks, chemical poisonings, physical injuries, and sometimes death.

Several devices are available to prevent backflow occurrences. The application of each device varies depending on the hazard of the potential cross connection. The safest and most dependable method for preventing a cross connection is a physical separation or air gap. An approved air gap is a separation between the discharge end of a potable water supply pipeline and a receiving vessel. The separation must be 2 times the diameter of the supply pipe above the overflow rim of the vessel—in no case less than one inch.

A good example of an air gap in your house is the separation between the faucet and the sink basin. Removable showerheads and faucets when left in a tub of water eliminate the air gap and create the potential for backflow to occur.

Other common backflow assemblies include reduced pressure backflow assemblies (RPBA), double check valve assemblies (DCVA), and pressure vacuum breakers (PVB). Each of these assemblies must be tested yearly by a certified backflow assembly tester.



The City of Wenatchee Water Resource Division works with certified testers, plumbers, and the consumer in order to provide a high level of protection. The consumer must be aware of cross connections and must prevent such connections with the appropriate backflow prevention. A cross connection control specialist can survey the consumer's facility for cross connections. A certified tester tests backflow assemblies and sends the test reports to the water supplier. The Water Resource Division administers the backflow program, maintains test records, and informs consumers when testing is due.

Common Household Cross Connections

- Irrigation Systems using City Water
- Swimming Pools
- Ponds
- Water hose with submerged nozzle
- Submerged sink sprayer
- Hose-connected sprayers for fertilizer & pesticides
- Fire Sprinkler Systems

Stormwater



THE RIVER STARTS HERE

Jessica Shaw, Environmental Supervisor

Have you ever noticed those slotted drains in front of your house or next to the curb? These drains are part of a vital network of pipes that carry stormwater runoff from roadways, driveways and parking lots out to the river. Storm drains can also be a way for pollutants to enter the environment and degrade water quality.

Differences between Storm & Sewer

The City of Wenatchee has separate systems for wastewater and stormwater. Wastewater from inside homes and businesses travels through a network of pipes and manholes to the wastewater treatment plant. The treatment plant then reduces the amount of pollutants in the wastewater prior to being discharged to the Columbia River.

In the stormwater system, however, water that enters the slotted drains and travels through the stormwater pipes goes directly to the Columbia River or the Wenatchee River. The stormwater system is not designed for wastewater. The discharge of pollutants to the stormwater system can cause damage to

pipes, create health and safety issues and ultimately pollute the environment.

Polluted runoff is the nation's greatest threat to clean water.

-- U.S. Environmental Protection Agency, January 2003

Stormwater Pollution

Typically, there are two sources of pollution in the stormwater system:

1. Stormwater runoff from rain and snowmelt
2. Non-stormwater discharges.

Non-stormwater discharges include wastewater from car washing, excess water from landscape irrigation and using water to wash sidewalks and driveways. Stormwater runoff and non-stormwater discharges from streets, parking lots, driveways, lawns, and construction sites carry a wide range of pollutants including dirt, fertilizers, pesticides, oil, grease and even heavy metals into the river.

Once in the river, these pollutants impair water quality affecting recreation, fish, wildlife and other downstream uses such as drinking water.

Impacts on Water Quality

Stormwater can contain a variety of pollutants that all have different impacts on the environment. Metals, pesticides and chlorine are all toxic to aquatic life at very low concentrations. Fertilizers can increase levels of nutrients in rivers and streams which can lead to increased algae blooms and decreased dissolved oxygen levels. Dirt and silt can increase turbidity or the cloudiness of the water and as a result increase water temperatures. Another pollutant source you may not have considered is pet waste and

hobby farms. Studies performed on watersheds in the Seattle area found that nearly 20% of bacteria found in water samples were matched with dogs as the host animal.

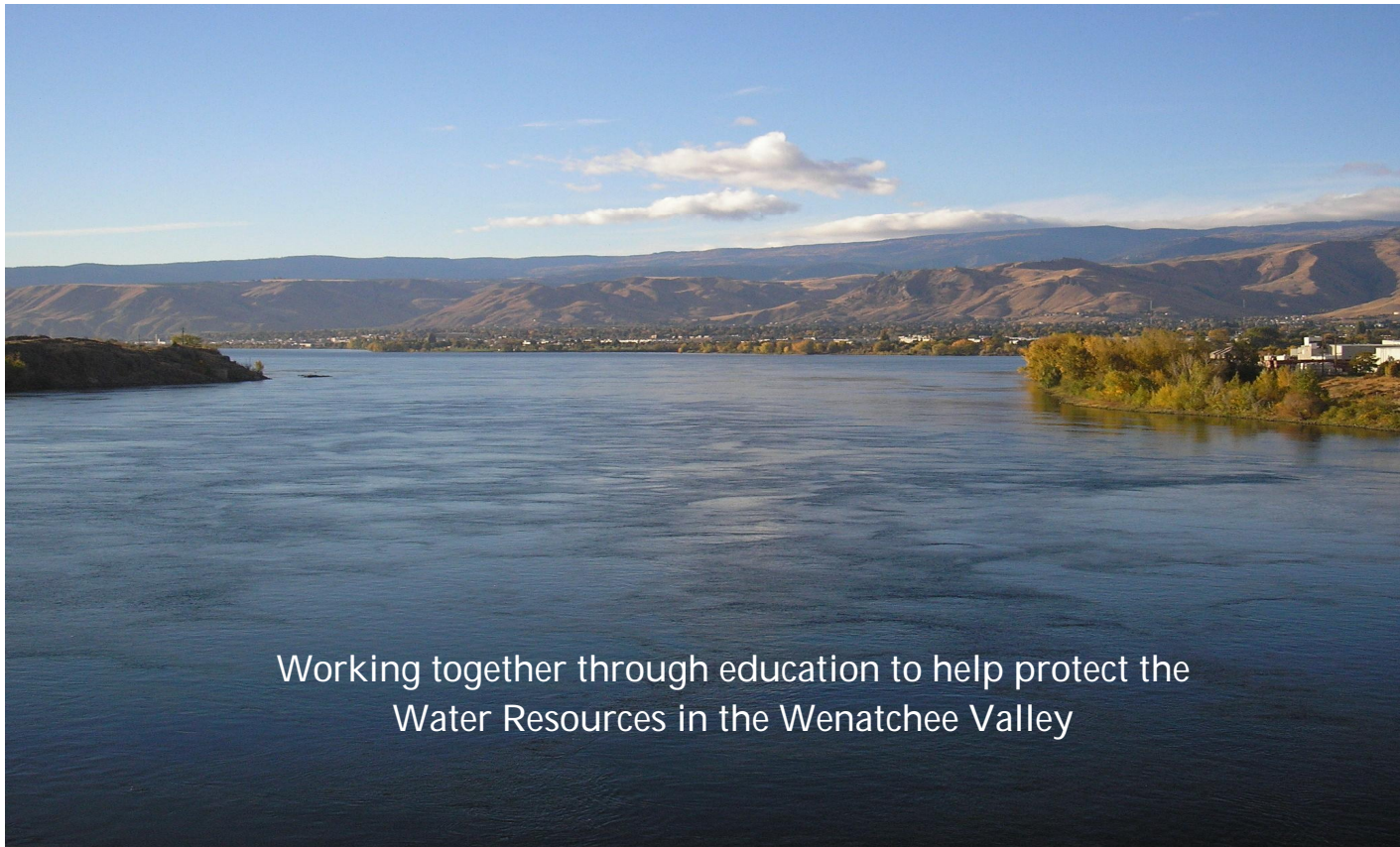
Reducing Pollution

Because stormwater pollution can be caused by the daily activities of people everywhere, it can be challenging to reduce stormwater pollution. As a homeowner and/or business owner, though, there are steps you can take to help protect the environment. One of the easiest ways to reduce pollution is to use a broom to clean up grass and dirt from driveways and sidewalks. Also, minimizing the use of fertilizers and pesticides can help protect water quality. Below are some more suggestions for helping to protect our rivers.

Ten Things You Can Do To Prevent Stormwater Runoff Pollution

From the U.S. Environmental Protection Agency

1. Use fertilizers sparingly and sweep up driveways, sidewalks and roads.
2. Never dump anything down the storm drains.
3. Vegetate bare spots in your yard.
4. Compost yard waste.
5. Avoid pesticides; learn about Integrated Pest Management.
6. Direct downspouts away from paved surfaces.
7. Take your car to the car wash instead of washing it in the driveway.
8. Check your car for leaks and recycle motor oil and other fluids.
9. Pick up after your pet.
10. If you have a septic tank, have it pumped and inspected regularly.



Working together through education to help protect the
Water Resources in the Wenatchee Valley

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The Regional Water Source

Aquifers are naturally formed underground filtration systems that store groundwater. Groundwater moves through the sand and gravel that makeup the aquifer.

Formed thousands of years ago by the Missoula Floods, the Eastbank aquifer is located in Douglas County near Rocky Reach Dam. The aquifer is tapped by four wells drilled over 200 feet deep. Currently, an average of 9 million gallons per day is pumped from the aquifer for domestic use serving the City of Wenatchee, Chelan County PUD and East Wenatchee Water District. An engineering study completed in 1977 estimated that the aquifer is capable of producing 240 million gallons per day. Even though this sounds like a large volume, this valuable resource must be protected.



Since 1998 all three entities have been involved in implementing a Wellhead Protection Plan, which includes activities for protecting the aquifer. The plan defines the wellhead protection area, lists potential sources of contamination and contains

management strategies to reduce the possibility of contamination. The plan addresses potential threats including fertilizers, pesticide application, above and below ground storage tanks and septic systems. Another threat to the aquifer is the transportation of materials by truck or rail which can pose a threat from spills.



A wellhouse at the regional source.

Even though the Wellhead Protection Plan provides strategies for protecting this valuable natural resource, all three entities continue to address new threats to the aquifer and plan for future demands.

Having informed citizens is a key to long term drinking water protection!

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Questions and Comments ...

This is the first issue of the Water Resources Review. The printing and mailing costs were approximately \$0.33 per copy. If you find this newsletter useful and informative and would like to see future issues, please let us know. To provide comments or if you have questions regarding this publication, or any of the featured utility programs, please call the City of Wenatchee Water Resources Division at 664-3364.

Mayor

Dennis Johnson

City Council

Carolyn Case, Don Gurnard, Mark Kulaas, Frank Kuntz, Craig Larsen, Mark Peterson, & Anne Temte

City Council Meetings

2nd and 4th Thursday of each month.

5:15 PM at City Hall, 129 South Chelan Avenue.

For more information please contact the City Clerk at 664-3304.

The mission of the City of Wenatchee government is to provide the services and facilities essential to protect and enhance the quality of peoples' lives, through wise planning and efficient use of resources.

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